REMARKS

Applicant has amended the claims to correct minor antecedent basis errors, remove unnecessary capitalization   Applicant has also amended claims 1 and 12 to explicitly recite computer(s).

35 U.S.C § 101

The examiner rejected Claims 1-21 under 35 U.S.C. § 101 arguing that the claimed invention was directed to non-statutory subject matter.

The examiner argued in part:

> ... As such the claimed invention is directed to a judicial exception to 35 U.S.C. 101 (i.e., an abstract idea, natural phenomenon, or law of nature) and is not directed to a practical application of such judicial exception because the claims do not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result.
>
> The Court of Appeals for the Federal Circuit issued opinions in *State Street Bank & Trust Co. V. Signature Financial Group Inc.*, 149 F. 3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) and *AT&T Corp. V. Excel Communications, Inc.*, 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999).
>
> These decisions explained that, to be eligible for patent protection, the claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result."' State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601 02. To satisfy section 101 requirements, the claim must be for a practical application of the § 101 judicial exception, which can be identified in various ways: (a) The claimed invention "transforms" an article or physical object to a different state or thing, (b) The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.
>
> The USPTO's official interpretation of the utility requirement provides that the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible. See MPEP § 2107. The claimed invention does not meet this requirement.
>
> The tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had "no substantial practical application"). It is not clear as to what real world result is produced by implementing the claimed invention. The last step of delivering the order does not imply trading.
>
> For an invention to produce a "concrete" result, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000) (where asserted result produced by the claimed invention is "irreproducible" claim should be rejected under section 101). The opposite of "concrete" is unrepeatable or unpredictable. The limitations of the claimed invention are not sufficiently precise to guarantee that result that is substantially repeatable or the process produces the same result again.

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**There is no useful, concrete and tangible result produced from implementing
the steps of the claimed invention. The dependent claims are rejected for the same
reason and by way of dependency on a rejected independent claim.**

Applicant has amended claims 1 and 14 to explicitly recite computer(s). Nonetheless,

Applicant believes that the examiner's reasoning is in error, whether for the claims as originally

presented or as amended.

Independent 1 is directed to an electronic market system for trading of securities

including a client <u>computer</u> station and a server <u>computer</u> system. Independent claim 12 is

directed to "A <u>computer implemented</u> method for trading securities in an electronic market ...

receiving <u>by a computer system</u> ... and delivering <u>by the computer system</u> ... ." Claim 17 as

originally presented is directed to: "A computer program product residing on a computer

readable media for trading securities in an electronic market comprises instructions for causing a

computer to ... ."

The examiner relies on *State Street Bank & Trust Co. V. Signature Financial Group Inc.*,

149 F. 3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) and *AT&T Corp. V. Excel Communications,

Inc.*, 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999) to support the position that: "These decisions

explained that, to be eligible for patent protection, the claimed invention as a whole must accomplish a practical

application. That is, it must produce a "useful, concrete and tangible result."' State Street, 149 F.3d at 1373-74, 47

USPQ2d at 1601 02."

Applicant contends that the claimed invention accomplishes the practical application and

produces a useful, concrete and tangible result of "delivering the order, as a liability or non-

liability order in accordance with how the selected quoting market participant chooses to receive

directed orders." This is the useful, concrete and tangible result, as required by *State Street Bank

& Trust Co. v. Signature Financial Group*, 149 F.3d 1368, at 1373, 47 USPQ2d at 1601-02.

Delivery of an order according to the claim possesses sufficient "real world" value for which

patent protection should be granted.

In claim 1, for example, the claimed arrangement is embodied as computer hardware with

the computers functioning to accomplish the claimed result. Accordingly, claim 1, per se, is not

directed to an abstract idea or concept. (See *Brenner v. Manson*, 383 U.S. 51 9, 528-36, 148

USPQ 689, 693-96); *In re Ziegler*, 992, F.2d 1 197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

Applicant's claims recite and the specification describes a practical application for the claimed invention, delivery of orders for execution or negotiation in the context of an electronic market system, a clearly useful invention to investors and the financial community.

The examiner also fails to address why the machine limitations in each of these claims fails to satisfy the reasoning of *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601 and *In re Alappat* 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994)

Indeed, in *State Street*, the patent in issue was:

> generally directed to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds. In essence, the system, identified by the proprietary name Hub and Spoke®, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments coupled with the tax advantages of a partnership. *State Street* 33 F.3d at 1370.

The Federal Circuit in *State Street* 33 F.3d at 1373 reasoned that:

> The Supreme Court has identified three categories of subject matter that are unpatentable, namely "laws of nature, natural phenomena, and abstract ideas." Diehr, 450 U.S. at 185. Of particular relevance to this case, the Court has held that mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas. See Diehr, 450 U.S. 175, passim; Parker v. Flook, 437 U.S. 584 (1978); Gottschalk v. Benson, 409 U.S. 63 (1972). In Diehr, the Court explained that certain types of mathematical subject matter, standing alone, represent nothing more than abstract ideas until reduced to some type of practical application, i.e., "a useful, concrete and tangible result." Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557.

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> Unpatentable mathematical algorithms are identifiable by showing
> they are merely abstract ideas constituting disembodied concepts
> or truths that are not "useful." From a practical standpoint, this
> means that to be patentable an algorithm must be applied in a
> "useful" way. In <u>Alappat</u>, we held that data, transformed by a
> machine through a series of mathematical calculations to produce a
> smooth waveform display on a rasterizer monitor, constituted a
> practical application of an abstract idea (a mathematical algorithm,
> formula, or calculation), because it produced "a useful, concrete
> and tangible result"--the smooth waveform.

In *State Street*, the Federal Circuit held that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful, concrete and tangible result"--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades. The Federal Circuit reasoned that the Supreme Court acknowledged that Congress intended 35 U.S.C. 101 to extend to "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) to give full effect to Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in 101. *State Street* 33 F.3d at 1373.

The examiner's conclusion that "There is no useful, concrete and tangible result produced from implementing the steps of the claimed invention. The dependent claims are rejected for the same reason and by way of dependency on a rejected independent claim.", is clearly unsupported by the reasoning and rationale expressed by the Federal Circuit in *State Street*.

Moreover, the examiner conclusion is unsupported by any reasoning or rationale. It is a mere naked conclusion. While claim 12, as presented merely recited an electron market, the examiner ignored that the other claims recited systems and an article of manufacture namely a computer readable medium. The burden is on the examiner to show that the claims do not produce the "useful, concrete and tangible result." The examiner has not satisfied this burden.

Applicant contends therefore, that clearly the claims as now presented are not directed to an abstract idea without practical application since each of the claims recite structure, computers,

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computer implemented steps or a computer program product on a computer readable medium to produce a "useful, concrete and tangible result."

The Examiner's conclusion that the claims are directed to abstract ideas is not supported by the guidance expressed by the Federal Circuit in *In re Warmerdam*, 33 F.3d 1354, 31 U.S.P.Q.2d 1754 (Fed. Cir. 1994), as interpreted by *AT&T Corp v. Excel Communications, Inc. et al.* 72 F.3d 1352, 50 U.S.P.Q.2d 1447 (Fed. Cir. 1999).

In *Warmerdam*, the court found claims 1-4 and 6 were directed to a process that simply manipulated "abstract ideas" or "natural phenomena. In contrast, claim 5 was found statutory. Claims 1 and 5 are reproduced below:

> 1. A method for generating a data structure which represents the shape of [sic] physical object in a position and/or motion control machine as a hierarchy of bubbles, comprising the steps of:
> first locating the medial axis of the object and
> then creating a hierarchy of bubbles on the medial axis.
>
> 5. A machine having a memory which contains data representing a bubble hierarchy generated by the method of any of Claims 1 through 4.

In *Warmerdam*, the court held that claims 1-4 and 6 were directed to non-statutory subject matter, whereas claim 5 was clearly directed to statutory subject matter, even though it depended on claims 1-4, because it was directed to a machine. *Warmerdam*, 33 F.3d at 1360.

In accord with the reasoning in *Warmerdam* is *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994) in which a data structure on a computer medium was expressly found to recite patentable subject matter by the Board and acknowledged by the Federal Circuit in rendering its holding that a printed matter rejection did not apply to data structures, as claimed in Lowry.

The reasoning from *AT&T v. Excel* at 1453 while acknowledging that: "A mathematical formula alone, sometimes referred to as a mathematical algorithm, viewed in the abstract, is considered unpatentable subject matter. (citations omitted)" The court also noted that

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This court recently pointed out that any step-by-step process, be it electronic, chemical, or mechanical, involves an "algorithm" in the broad sense of the term. *See State Street Bank & Trust Co. v. Signature Fin. Group, Inc.,* 149 F.3d 1368, 1374-75, 47 USPQ2d 1596, 1602 (Fed.Cir.1998), *cert. denied,* 525 U.S. 1093, 119 S.Ct. 851, 142 L.Ed.2d 704 (1999). Because § 101 includes processes as a category of patentable subject matter, the judicially-defined proscription against patenting of a "mathematical algorithm," to the extent such a proscription still exists, is narrowly limited to mathematical algorithms in the abstract. *See id.; see also Benson,* 409 U.S. at 65, 93 S.Ct. 253 (describing a mathematical algorithm as a "procedure for solving a given type of mathematical problem").

The court went on to observe that:

Since the process of manipulation of numbers is a fundamental part of computer technology, we have had to reexamine the rules that govern the patentability of such technology. The sea-changes in both law and technology stand as a testament to the ability of law to adapt to new and innovative concepts, while remaining true to basic principles.

Applicant contends that *AT&T* is in harmony with *Warmerdam,* the Federal Circuit, stating: "Finally, the decision in *In re Warmerdam,* 33 F.3d 1354, 31 USPQ2d 1754 (Fed.Cir.1994) is not to the contrary."

In *AT&T,* the Federal Circuit noted that: "The notion of "physical transformation" can be misunderstood. In the first place, it is not an invariable requirement, but merely one example of how a mathematical algorithm may bring about a useful application." Applicant's claims recite a physical transformation, namely, "delivering the order, as a liability or non-liability order in accordance with how the selected quoting market participant chooses to receive directed orders."

The claims, as originally presented, and clearly as amended, exclude abstractions.

Claim 1 for instance requires "… a client <u>computer</u> station … and a server <u>computer</u> system … ." Claim 12 requires "A <u>computer implemented</u> method … receiving <u>by a computer system</u> … and delivering <u>by the computer system</u> … . and Claim 17 calls for "A computer

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program product residing on a computer readable media for trading securities in an electronic market comprises instructions for causing a computer to: ... ."

Thus, in accord with *Warmerdam* and the other cited cases the claims are not directed to abstractions, but rather are limited to practical applications. Therefore, the claims are proper under 35 U.S.C. §101.

35 U.S.C § 112

The examiner rejected claims 1-21 under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements..

The examiner stated:

> The omitted elements are: Claims 1-21 recite the limitation " delivering the order, as a liability or non-liability order". However the step for determining the order, as a liability or non-liability order is missing in these claims. Also it is not clear what the applicants mean by the terms "a liability order" and "non-liability order". Appropriate clarification/correction is required.[1]

Claims 1-21 do not omit essential steps. Claims 1-21 define subject matter that is novel and non-obvious over the cited prior art. It is not necessary for the claims to recite every element needed for practical utilization of the claimed subject matter in order for a claim to be proper under 35 U.S.C. §112, second paragraph, *Bendix Corp. v. United States*, 600 F.2d 1364, 1369, 204 U.S.P.Q. 617, 621 (Court of Claims, 1979). It is not the role of the claims to enable one skilled in the art to reproduce the invention, but rather to define the legal metes and bounds of the invention. *In re Geoffe*, 526 F.2d 1393, 1397, 188 U.S.P.Q. 131, (CCPA, 1975). The claims need not provide all operating details but a method claim should recite a positive step. *In re Erlich*, 3 U.S.P.Q. 2d 1011 (Bd. Pat. App. & Int., 1986).

Moreover, the examiner contends that "However the step for determining the order, as a liability or non-liability order is missing in these claims." It is not necessary for patentability that how determining whether the order is a liability or non-liability order is determined. In some embodiments that is

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[1] Citing to MPEP § 2172.01

established *a priori*.[2] Examples of how that can be accomplished is clearly disclosed in the specification,[3] but is not necessary to distinguish over the prior art.

The examiner also argues that: "Also it is not clear what the applicants mean by the terms "a liability order" and "non-liability order". Liability orders are orders that market makers and ECN's are liable for, meaning that they have to fulfill by delivery of an order for execution,[4] whereas, non-liability orders are negotiable[5].

Claims 2-3, 13, and 18 have been amended to state what the acronym "MMID" means, "market maker identification." Support is found for instance at page 18, lines 20-23.

With respect to claims 9-10, 14-15 and 19-20 the examiner argues that: "...at least one normal unit of trading in excess of an attributable quote/order". It is not clear what the applicants mean by "attributable quote/order" and "at least one normal unit of trading in excess of an attributable quote/order". Is the normal unit of trading a measure of price or is it a measure of volume."

Applicant contends that one skilled in this art would understand that in most markets that trade securities a normal unit of trading is a round lot, (100 shares of a security).[6] Attributable corresponds to those quotes/orders that are attributable to a specific market maker (indicated by an MMID).[7]

Accordingly, there were not any ambiguities in the claims and the examiner was and still is able to examine these claims over the prior art.

Applicant has enclosed an information disclosure statement listing two publications that has just recently come to the undersigned's attention and some patents.

Applicant contends that these references whether alone or together neither describe nor suggest Applicant's claimed invention.

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[2] The market maker or ECN designates that it desires to receive directed order as liability or non-liability, i.e., negotiation orders. Each market participant can inform the market on how it desires to receive directed orders. In some embodiments this can be across all stocks traded by the market participant whereas in other embodiments it could be on a stock by stock basis. Appellant's specification page 16, lines 12-18.

[3] If the quoting market participant chooses to accept directed liability orders the system 20 appends 156 an indicator to the quoting market participant's MMID, showing that the market participant is available to receive directed liability orders. Id. page 16, lines 23-27.

[4] See Id. See also page 7, lines 28-30

[5] Id. page 16, line 16. See also page 7, lines 28-30.

[6] Id. page 17, lines 16-17

[7] Id. page 10, lines 10-15

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Please charge the Petition for Extension of Time fee of **$120** and please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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